

Financial Performance Analysis of Bank of Bhutan Limited using Regression Analysis

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ABSTRACT

This study analyses the financial performance of the Bank of Bhutan Limited (BOBL). To measure the performance of BOBL, the factors affecting the profitability of the bank have been analysed. The data for the study are collected from the published annual reports of BOBL for the period of 2009-2020. Regression analysis is used to evaluate the financial performance of the bank. Return on Investment (ROI) is used as a dependent variable, and Return on Assets (ROA), Total Expense Ratio (TER), Loans and Advances to Total Assets Ratio (LTAR) and Spread to Total Deposit Ratio (STDR) are used as independent variables. The findings of the study indicate that TER has a positive relationship with the profitability of BOBL whereas LTAR has a negative relation with BOBL's profitability. Hence, it is concluded that among four independent variables, ROA and TER had significant impact on the profitability of BOBL.

KEYWORDS: Bank of Bhutan Limited, Profitability of bank, Regression analysis, ROI, ROA, TER

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INTRODUCTION

The banking system of a country plays an important role in funds mobilisation and the development of the economy. Banks act as an organisation and as a middle person in channelising the unutilised funds lying with the citizen of a country for their productive use in the development of an economy. There are various internal and external factors that affect the financial performance of a bank. The internal factors are bank specific such as capital adequacy, liquidity, asset quality etc... and external factors that is micro-factor such as interest rate, inflation rates, GDP etc...

The evolution of banking business in Bhutan dates back to 1968. In 1968 the first Bhutanese Bank was established. Bank of Bhutan Limited (BOBL) was the first commercial bank in Bhutan. It was established as a joint venture with the Chartered Bank of India, Australia and China. Both banks held 25 per cent share of BOBL. However, in 1970, these shares were transferred to State Bank of India (SBI). SBI held 40% of BOBL's equity and also helped to manage it. In 2007, the equity holdings of SBI was reduced to 20%. This was mainly because in 2007 Druk Holding and Investments (DHI) took over the private sectors

in Bhutan. BOBL also acted as a central bank of Bhutan until 1982 when RMA was established.

Initially, BOBL faced the problem of liquidity since the majority of Bhutanese were yet to understand the benefits of savings. Due to this, BOBL had very less funds needed to run smoothly. In order to deal with this problem, the Royal Government of Bhutan (RGoB) made it compulsory for all the government officials to deposit their earnings with BOBL and till date the trend still persist. The bank now operates in all the dzongkhags (districts) of Bhutan.

With this background, this paper aims at determining the factors that have an impact on the profitability of Bank of Bhutan Limited and attempts to provide the organisation with the viable module for determining its profitability.

Literature Review

Analysing financial performance is one of the most important aspects of any organisation. It helps the organisation to know where it stands financially and where it should improve so that it can sustain itself in the market. There are various tools that analyses the

performance of an organisation and many authors have used these tools such as Balanced Scorecard (Urrutia & Eriksen, 2005; Wu, 2012), CAMELS model (Kobika, 2018; Samuel, 2018), Data Envelopment Analysis (Das & Ghosh, 2006; Donthu et al., 2005; Halkos & Salamouris, 2004) etc. Since the current study focuses on the financial performance analysis of bank, some of the studies and the findings related to the studies previously done of banking sectors are discussed below.

Balanced Scorecard

Balanced Scorecard is one of the most widely used method of performance evaluation of an organisation. It evaluates the performance of an organisation using both financial and non-financial dimensions of the organisation. In a study conducted by Agyei and Brako Ntiamoah (2016), the author studies the use of a balanced scorecard in evaluating the performance of banking sectors in Ghana. For the study, various key performance indicators were identified for both financial and non-financial dimensions of the balanced scorecard. The data for the study was collected from 2010 to 2012. The study also tried to present the cause and effect relationship between non-financial and financial dimensions of the balanced scorecard. The banks under study showed that the performance of banks was high in case of financial perspectives than compared to the non-financial perspectives of balanced scorecard.

Analysing the performance of a bank helps it to understand where it needs to improve to attract more customer and get in more profit. A balanced scorecard helps the bank to evaluate its performance both financially and non-financially. To increase its market share and profitability, the bank as a service institution must keep track of its current performance and should always try to improve it. This not only improves the performance of the bank but also increase its profitability and the bank's survival in the market (Gupta et al., 2018).

CAMELS' Ratio

CAMELS' ratio is yet another method of analysing the performance of an organisation. CAMELS stands for Capital adequacy, Asset quality, Management, Earnings, Liquidity, and Sensitivity. It evaluates the performance of an organisation under these five parameters. It is widely used across the banking sectors to evaluate their performances. Some of the studies are discussed below.

Rashid and Jabeen (2016), made a study to identify and analyse the factors that have a significant bearing on the performance of banks in Pakistan. However, for the study, the author divides the banks of Pakistan into two different categories namely conventional and

Islamic banks. The study uses CAMELS' ratio to draw the conclusion and the data for the study was collected from unbalanced annual panel data from 2006 to 2012. The result of the study identifies operating efficiency, reserves, and overheads as significant determinant of conventional banks. On the other hand, the determinants of Islamic banks were operating efficiency, deposits, and market concentration. This study shows that the performance parameters for the organisation can be different from one another. The findings of this study are also in line with the findings of Siddiqui (2008), who states that operational issues in Islamic banks are one of the major factors that give rise to liquidity management of a banking institute in Pakistan.

Data Envelopment Analysis

A study was conducted by Arif and Anees (2012), to examine the liquidity risk and its effect on the profitability of banks in Pakistan. For this purpose, data of 22 banks in Pakistan were collected from their respective annual reports. The data was collected for the period of 5 years (2004-2009) and multiple regression analysis was applied to derive the result. From the analysis, it was found that the liquidity position of a bank had a significant effect on its profitability. However, the author mentioned that the study only focuses on profitability as a sole measure of performance indicator for a banking institution. The study also states that economic factors also have a significant contribution in affecting the liquidity position of a banking institute.

In another study conducted by D. Wu and Wu (2010), the author analysed the contribution of online banking services towards the performance of big banks of the United States of America (USA) and the United Kingdom (UK). The data for the study was collected from the annual reports of the respective banks. Principal component analysis and data envelopment method were used to reach the conclusion. Both financial and non-financial variables were used to evaluate the performance of banks under study. The findings of the study presented that most of the banks under this study performed well based on data envelopment analysis and the key performance that was identified in the study were the employees. It was found that employee played a major role in bringing more revenue in the bin banks of the US and UK.

Kumar and Gulati (2010), conducted a study to understand the efficiency, effectiveness and performance of public sector banks in India. The data for this purpose was collected from 27 public sector banks of India for 2006-2007. Data envelopment analysis was used to analyse the data. The result of the study presented that, effectiveness and

performance of public sector banks in India had a strong positive correlation. On the contrary, efficiency did not have any correlation with public sector banks in India. The author also presents that efficient banks are not always effective. The findings of this study are also in line with the findings of Ho and Zhu (2004), who conducted a similar study in the banks of Taiwan. The author also states that efficiency and effectiveness do not have any correlation. High efficiency does not always mean high effectiveness.

Other Methods

Mondal and Ghosh (2012), conducted a study to understand the relationship between intellectual capital and the financial performance of banks in India. The data of 10 years (i.e. from 1999 to 2008) from 65 banks operating in India were collected. For the study, Value Added Intellectual Coefficient (VAIC) was used. The profitability of banks was measured by using Return on Assets (ROA) and Return on Equity (ROE). On the other hand, the Asset Turnover Ratio (ATR) was used to measure the productivity of Indian banks. The findings of the study show a valid relation between intellectual capital and the financial performance of the banks. The author also presents that, banks can use intellectual capital as a tool to have a competitive advantage over others.

In another study conducted by Pinto et al. (2017), the author evaluates the financial performance of banks in Bahrain. The data for the study was collected from the annual reports of banks for 10 years (i.e., 2005-2015) and it was analysed using correlation, regression, and t-test. The results of the analysis found that the bank's profitability had a significant impact on capital adequacy and financial leverage of banks in Bahrain. However, the study did not identify the relationship between efficiency and profitability of banks in Bahrain.

Research Gap

There are many studies that is done on the performance evaluation of banks across the world. However, there are only few studies that analyses the financial performance of banks across of world and particularly in Bhutan. This paper will also try to study the relationship between efficiency and profitability of Bank of Bhutan Limited.

Objectives of the Study

The following are the objectives for the purpose of this study:

- To identify factors that have a significant bearing on the financial performance of Bank of Bhutan Limited

- To determine which identified factors impact the profitability of Bank of Bhutan Limited significantly

Hypothesis

H_{0a}: Return on Asset (ROA) has no relation with the financial performance of Bank of Bhutan Limited

H_{0b}: Loans and Advances to Total Assets Ratio (LTAR) has no relation with the financial performance of Bank of Bhutan Limited

H_{0c}: Total Expense Ratio (TER) has no relation with the financial performance of Bank of Bhutan Limited

H_{0d}: Spread to Total Deposit Ratio (STDR) has no relation with the financial performance of Bank of Bhutan Limited

Research Methodology

Research Design

This study uses a hypothesis testing research design. The hypothesis is designed in accordance with the variables identified in this study. The model that has been designed for this study is:

$$ROI = a + b_1ROA + b_2LTAR + b_3TER + b_4STDR + e$$

Where:

- ROI is the dependent variable,
- ROA, LTAR, TER, and STDR are the independent variables,
- a is constant
- b₁, b₂, b₃ and b₄ are the coefficients of the respective independent variables
- e is the error term.

The data for this study is collected from secondary sources. The data is collected from the published annual reports of Bank of Bhutan Limited for the period 2004-2020.

Operational Design

To determine the variables affecting the profitability of Bank of Bhutan Limited, the following variables have been identified:

Earnings before Interest and Tax (EBIT)

The figure of EBIT is calculated by adding back the income tax paid by the bank and the amount of interest paid by the bank with earning after tax of the bank for a year. The formula for it is:

$$EBIT = EAT + Tax + Long\ term\ financing\ cost$$

Spread

The figure for Spread is calculated by subtracting interest expense on deposits from the total interest income of the bank for a year. The formula for it is:

$$Spread = Interest\ Income - Interest\ Expenses\ on\ Deposits$$

Total Income (TI)

The figure of TI is calculated by adding total interest income and total non-interest income for a year. The formula for it is:

$$TI = \text{Interest Income} + \text{Non interest Income}$$

The figures for variables Total Deposits (TD), Total Liabilities (TL), Total Assets (TA), shareholder's equity (SE), and Loans and Advances (LA) are directly taken from the annual reports of the Bank of Bhutan Limited.

Table 1 Definition of Variables

Name of the variables	Description	Formula
Dependent Variable		
Return on Investment (ROI)	It is calculated by multiplying Earnings Before Interest and Tax to total income ratio with total income to total assets ratio.	$\frac{EBIT}{TI} * \frac{TI}{TA}$
Independent Variables		
Return on Assets (ROA)	It is calculated by dividing total income with total assets of the firm. The total income of the bank includes interest income as-well-as non-interest income	$\frac{TI}{TA}$
Loans and Advances to Total Assets Ratio (LTAR)	It is the ratio of total loans and advances disbursed by a bank in a year to total assets of bank for the same year	$\frac{LA}{TA}$
Total Expense Ratio (TER)	It is the ratio of total expenses to total income of a bank. The total expenses of the banks include interest expense as-well-as non-interest expense	$\frac{TE}{TI}$
Spread to total deposit ratio (STDR)	It is the ratio of interest income minus interest expenses and total deposit	$\frac{\text{Spread}}{TD}$

Source: Author's Compilation

Durbin Watson (DW)

For the purposed study, Durbin Watson statistics is used to check the autocorrelation between the variables used in regression analysis. The value of Durbin Watson ranges from 0-4. If the value of this statistics falls between 0 to less than 2, it indicates positive auto correlation where as if the value falls between more than 2 to 4, it indicates a negative autocorrelation. If the value of this statistics is exactly 2, it means that the variables used have no autocorrelation (Field, 2018). However, as rule of thumb, the Durbin Watson test statistic values ranging from 1.5 to 2.5 are regarded as normal.

Tools for Analysis

For the purpose of analysing the data, regression and correlation analysis have been used in this study. All the test was don at 5% level of significance and the analysis was calculated in Statistical Package for Social Sciences (SPSS) version 25.

Data Analysis

To determine the relation of different variables with respect to the financial performance of Bank of Bhutan Limited, three different models were tested. In each of the models, the dependent variable (ROI) was kept constant. However, the models test the combination of various independent variables to get the best model for the financial performance of Bank of Bhutan Limited. Durbin-Watson test was also used to check the autocorrelation between the variables as well. The results are discussed in the section below.

Table 2 Correlation matrix of independent Variables

		ROA	LTAR	ER	STDR
ROA	Pearson Correlation	1			
	Sig. (2-tailed)				
LTAR	Pearson Correlation	-0.252	1		
	Sig. (2-tailed)	0.43			
TER	Pearson Correlation	0.667*	-0.272	1	
	Sig. (2-tailed)	0.018	0.392		
STDR	Pearson Correlation	0.605*	0.39	0.123	1
	Sig. (2-tailed)	0.037	0.211	0.703	

Note: * Correlation is significant at the 0.05 level (2-tailed).

Source: Author's Calculation

Table 2 presents the correlation matrix of the independent variables used in the study. The correlation test is done at 5% level of significance. From the table it can be seen that, the variable ROA have a positive correlation with the variable ER (0.018) and STDR (0.037). On the other hand, the variable LTAR is not significantly related with other independent variables.

Table 3 Regression analysis

	Unstandardized Coefficients		t (Sig.)	Collinearity Statistics	
	B	Std. Error		Tolerance	VIF
(Constant)	0.024	0.007	3.347 (0.012)		
ROA	0.307	0.205	1.499 (0.178)	0.379	2.638
LTAR	-0.050	0.006	-7.804** (0.000)	0.435	2.3
TER	0.967	0.106	9.167** (0.000)	0.871	1.149
STDR	0.010	0.010	0.938 (0.379)	0.531	1.882
Model Summary	R²: 0.985		Adjusted R²: 0.977	DW: 2.314	F-Value: 118.415
				Sig.: 0.000	

Note: **p < .01.

Source: Author's Calculation

Table 3 shows the regression model in which, ROI is the dependent variable and TER, LTAR, STDR and ROA are independent variables. In this model, it can be seen that TER (P-Value: 0.000) is positively significant. On the other hand, LTAR (P-Value: 0.000) is negatively significant. The Variable ROA (P-Value: 0.178) and STDR (P-Value: 0.379) was not significant. The value of adjusted R² for this model was 0.977. This indicates that 97.7% of changes in the dependent variable (ROI) is explained by the changes in the independent variables (TER, LTAR, STDR and ROA). The results extracted from ANOVA table also shows a significant relation between the dependent and the independent variables at 5% level of significance (F statistics: 118.415; P-Value: 0.000). With the help of information presented in Table 3, the following model is formed:

$$ROI = 0.024 + 0.307ROA - 0.050LTAR + 0.967TER + 0.010STDR$$

Hypothesis Testing

Table 4 presents the summary of hypothesis testing of all the independent variables used in the study.

Table 4 Summary of Hypothesis Testing

Model	Hypothesis testing	Computed t-statistics	Decision
Dependent variable ROI	H _{0a} : Return on Asset (ROA) has no relation with the financial performance of Bank of Bhutan Limited	3.347	Accept
	H _{0b} : Loans and Advances to Total Assets Ratio (LTAR) has no relation with the financial performance of Bank of Bhutan Limited	-7.804	Reject
	H _{0c} : Total Expense Ratio (TER) has no relation with the financial performance of Bank of Bhutan Limited	9.167	Reject
	H _{0d} : Spread to total deposit ratio (STDR) has no relation with the financial performance of Bank of Bhutan Limited	0.938	Accept

Source: Author's Compilation

From the table, among four independent variables used to determine financial performance of Bank of Bhutan Limited, Return on Asset (ROA) and Spread to Total Deposit Ratio (STDR) is not significant. It means that the ROA and STDR have no effect on the financial performance on Bank of Bhutan Limited.

On the other hand, Total Expense Ratio (TER), and Loans and Advances to Total Assets Ratio (LTAR) have a significant relation with the financial performance of Bank of Bhutan Limited. However, TER has a positive relation and LTAR had a negative relation with the financial performance of Bank of Bhutan Limited.

Findings and Conclusion

Performance analysis of the bank helps the organisation to understand how various factors have significant bearings on its performance. It will in turn help the organisation to know where they are excelling and where the organisation needs to improve. In this study, the financial performance of

the Bank of Bhutan Limited is analysed to check which factors have significant impact on the profitability of the organisation. For this purpose, regression analysis is used where ROI is taken as dependent variable and ROA, LTAR, STDR and TER are considered as independent variables. From the findings, it can be inferred that if the Loan and

Advances to Total Assets Ratio gets reduced it will impact the ROI positively. Similarly, it was also found that proper management of expenses consequently affects the independent variable that is ROI. Therefore, it could be suggested that management should take all measures to reduce wastages and minimise expenses. Management is advised to utilise the available resources efficiently so that income for the institution gets improved.

To check the problem of autocorrelation, Durbin Watson (DW) statistics were used. The DW value of the model was 2.314 which ranges between the normal DW ranges that is 1.5 to 2.5. Therefore, it can be stated that there is the problem of autocorrelation among the variables.

The model tested in this study met the 'BLUE' (Best Linear Unbiased Estimator) properties of multivariate regression analysis. Which means, the financial performance of Bank of Bhutan Limited using ROI as a dependent variable Return on Assets, Loans and Advances to Total Assets Ratio, Total Expense Ratio and Spread to Total Deposit Ratio as independent variables is found to be best model to be used to determine the financial performance of BOBL.

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